DRAFT
FINAL

COVER MATERIALS WORK PLAN

December 5, 2002

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December 5, 2002

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Subject: Response to Comments on the Draft Cover Materials Work Plan and Submittal of the Draft Final Cover Materials Work Plan for the Yerington Mine Site

Dear Art:

Atlantic Richfield Company appreciates this opportunity to respond to the comments provided by the regulatory agencies on September 27, 2002 for the subject document. This letter is attached to the *Draft Final Cover Materials Work Plan*.

NDEP Comments

The **Soil Survey of Lyon County Area, Nevada, United States Department of Agriculture, Soil Conservation Service** should be reviewed and referenced as a part of this work plan. Soil surveys have valuable information regarding soil properties for the top five feet of material as well as various engineering suitability references. A preliminary review of this survey indicates that the soil (Rawe 551) would be best characterized by collecting samples at three depths (0-10, 11-19, and 20-60 inches). Proposed sample depths of one foot are inadequate to characterize the proposed borrow soil unless only the top foot of material will be excavated. Also, other readily available references such as drill logs for wells located in this potential borrow area should be reviewed, if available.

Soil types from the SCS Soil Survey of Lyon County will be incorporated into the proposed sampling strategy, and are presented on Figure 2 of the Final Draft Work Plan. Soil type descriptions are presented in an Appendix to the Work Plan. If available, drillers' logs will also be reviewed and referenced. Atlantic Richfield agrees that samples from three depths (nominally one, three and five feet below ground surface) at each location should be collected for analyses, and the revised Work Plan text will reflect this.

Section 1.1 Location; There is no mention that Anaconda leached the W-3 WRA. There is historic documentation that shows the dump was leached in 1965-1968, 1972, 1974, 1975. From the records it appears that it may have been leached continuously for at least 10 years. Parts of the transite pipe return and feed lines are still in place along with some of the leach lines.

Based on the outcome of forthcoming discussions with the NDEP regarding confirmation of certain historical information, any revised discussion of the operational history of the W-3 Waste Rock Area will be incorporated into the Draft Final Waste Rock Areas Work Plan, the Draft Final Arimetco Heap and Process Components Work Plan and, as necessary, the Draft Final Cover Materials Work Plan.

Last line there are five leach pad areas not four.

The text will be revised accordingly.

Section 2.1 Quality Assurance and Quality Control Procedures; A "site-comprehensive Quality Assurance/Quality Control (QA/QC)" plan has not been submitted for review and approval.

The comprehensive Draft Quality Assurance and Project Plan (QAPP) will be provided by December 31, 2002.

The report states that information will be gathered from other work plans to complete this study. The detail of what information will be gathered from which work plan is not clear. This could be explained with a chart showing the various areas (materials) broken out by characterization activity and which work plan results will be used? Is the writer implying that some Arimetco and other historic data will be used? If so, that could also be shown on the chart. More detail is required to avoid omissions.

The Draft Final Cover Materials Work Plan will describe how samples and analytical results from other Work Plans will be used in evaluating potential cover materials.

Figure 2; It is not clear why we are sampling the Arimetco Leach Pads, S-32 sulfide ore pile, main sulfide tailings impoundment and not the rest of the sulfide and VLT tailings areas? Additional detail to comment for page 6 above may answer this question?

Figure 2 of the Draft Cover Materials Work Plan did not show proposed sample locations for the Oxide (VLT) Tailings Area, due to an omission. The Draft Tailings Areas and Evaporation Ponds

Work Plan proposed two sample locations for the Oxide Tailings Area. Figure 2 of the Draft Final Cover Materials Work Plan will be revised to show these locations. For clarification, all of the proposed sample locations shown on Figure 2 of the Draft Final Cover Materials Work Plan will be conducted under individual mine unit work plans and, as such, will complement the proposed sampling to be conducted under the Cover Materials Work Plan. These samples, in aggregate, will satisfactorily characterize possible cover materials available from on-site and off-site locations.

EPA Comments

1) Materials that appear otherwise to be useful for cover materials should be further tested for standard physical and engineering properties.

The Draft Cover Materials Work Plan indicates that whole-rock analysis (i.e., metals), acid-base accounting, NPK (nitrogen, phosphorous, potassium), agri-chemicals (B, Cl, Ca, Mg, Na), SAR (sodium absorption ratio), grain size analysis, gradation, and moisture storage capacity will be conducted on soil samples. If additional analyses are believed necessary, please specify what other physical and engineering properties should be tested, and why this data is necessary.

2) Radionuclide screening and/or analyses should be proposed. At a minimum, all samples should be screened for radionuclides and a percentage of samples should be analyzed in the laboratory.

Other than for community drinking water, there appears to be no Nevada or federal standards for either exposure or soil concentrations at inoperative non-uranium mine sites. Considering the lack of regulatory standards, Atlantic Richfield believes that there are no criteria with which to evaluate field or lab results for radionuclides, and thus questions the purpose for the collection of these data.

3) The Quality Assurance and Quality Control sections are incomplete and it is our understanding that Atlantic Richfield will be submitting a comprehensive site-wide Quality Assurance Project Plan (QAPP) in accordance with EPA's guidance documents (EPA will provide these on request or they can be obtained from EPA's website). After review of the QAPP, the agencies will further comment on any supplementary Quality Assurance/Quality Control sections in the specific work plans. Please provide a date for submittal of the QAPP as this must be reviewed and approved prior to initiation of fieldwork.

The QAPP will be submitted by December 31, 2002.

4) Page 3, Last Paragraph; Please clarify whether NDEP used the meteoric water mobility procedure or the synthetic precipitation leach procedure (SPLP).

The NDEP meteoric water mobility procedure (MWMP) was used for the analyses. Please refer to Appendix B of the Draft Arimetco Heap Leach and Process Components Work Plan for analytical reports.

5) Page 4, DQOs; The discussion regarding exposure scenarios is incomplete. Since this workplan and subsequent investigation will be focusing on the cover materials to be left on-site, the residential exposure pathway should be assessed for these areas. After the data is collected, it should be compared to screening values, such as EPA Region IX Preliminary Remediation Goals. At this time, the determination can be made as to the necessity of a risk assessment for a given area. There is also no discussion of possible exposure pathways for ecological receptors.

Findings from the individual work plans for each mine unit will be used to assess all potential exposure pathways as part of the Final Permanent Closure Plan. The revised text in Section 1.3 will describe this.

6) Page 4; The permeability value for the sulfide tailings depends on how the tailings are wetted and compacted. Thus, the value stated is only applicable under the conditions tested. These conditions should be stated.

The last paragraph of Section 1.2 pertains to test results for engineering design of the Phase IV Heap Leach Pad. Although this discussion was presented in the Draft Cover Materials Work Plan as background information, it is not critical to the Cover Materials Work Plan and will be deleted.

7) Page 6; Materials should be sampled at depths greater than one foot to assure that properties are uniform with depth. Otherwise, the volume estimates for available materials are speculation.

Per the first NDEP comment above, Atlantic Richfield proposes to collect samples from three depths (nominally one, three and five feet below ground surface) at each off-site location for analyses.

8) Page 7; How will the grain size analysis be used to assess the potential to generate fugitive dust?

Results from grain size analyses may be used in a semi-quantitative fashion to assess the potential for fugitive dust generation, similar to the Engineering Technical Support Center (ETSC) report provided as Appendix B in the Draft Final Fugitive Dust Work Plan.

9) Page 7, General; The suitability of using materials as a cover is not complete without assessing the potential of the materials to generate a leachate with undesirable COCs or physical properties (pH, TDS etc.).

The possible use of native materials from the alluvial fan west of the mine site, shown in Figure 2 of the Work Plan, assumes that what is acceptable in the natural environment would be acceptable to cover mine units on site. If native materials leach COCs in typically aggressive laboratory tests (e.g., meteoric water mobility procedure or the synthetic precipitation leach procedure) compared to natural conditions, such results do not mean that they will actually leach COCs in the natural environment, only that there is the potential for leachate with COCs to occur. Also, the use of leaching test results to decide whether or not certain materials can be used as cover materials assumes there is a pathway for leachates to migrate to groundwater. This is particularly unlikely at the Yerington Mine Site, where the limited precipitation that falls on the valley floor does not contribute to groundwater recharge. This will be verified by proposed soil moisture monitoring, as presented in the Draft Groundwater Conditions Work Plan. The more appropriate tests are the ones proposed -- to analyze for soil whole rock chemistry (that can be compared to PRGs), the ability of the materials to store and release soil moisture by evaporation and evapo-transpiration, and the ability of the materials to support plant growth.

10) Table 1; Please check your table for proposed metals and methods of analyses. At a minimum, antimony, beryllium, silver and thallium should also be included.

Antimony, beryllium, silver, and thallium, and their respective methods, have been added to Table 1 of the Draft Final Cover Materials Work Plan.

11) Figure 2; Are some of these locations duplicates to other samples proposed under different workplans?

Yes. Each mine unit (e.g., Waste Rock Areas) has a separate work plan that describes these proposed sample locations.

If you have any questions regarding the response to comments or the attached Final Draft Cover Materials Work Plan, please call me at 1-406-563-5211 ext. 430.

Sincerely,

Dave McCarthy
Project Manager

cc: Bonnie Arthur, SFD-8-1, USEPA Region 9
Kris Doebbler (BLM)
Tad Williams, Walker River Paiute Tribe
Robin Bullock, Atlantic Richfield Company
John Krause, Bureau of Indian Affairs
Stan Wiemeyer, U.S. Department of the Interior, Fish and Wildlife Services Division
Vicki Roberts/Johanna Emm, Yerington Paiute Tribe
Elwood Emm, Yerington Paiute Tribe
Paul Thompsen, Office of Senator Harry Reid
Phyllis Hunewill, Lyon County Commissioner
Joe Sawyer, SRK Consulting
Dietrick McGinnis, McGinnis and Associates
Ed Bates, EPA-ORD

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SECTION 1.0
INTRODUCTION

Atlantic Richfield Company has prepared this Draft Final Cover Materials Work Plan (Work Plan) to assess the availability of off-site suitable cover materials for potential use at the Yerington Mine Site, pursuant to the Closure Scope of Work (SOW). Per the SOW (Brown and Caldwell, 2002a), the objective of this Work Plan is to evaluate "potential cover materials from alluvial borrow sources and from existing mine units for use in potential site closure activities".

In addition to off-site native alluvium, characterization data for the potential use of cover materials from the Waste Rock Areas, Tailings Areas, and from the Arimetco Heap Leach Pads will also be collected, as presented in the following companion Draft Work Plans: *Waste Rock Areas Work Plan* (Brown and Caldwell, 2002b), *Tailings and Evaporation Ponds Work Plan* (Brown and Caldwell, 2002c) and *Arimetco Heap Leach and Process Components Work Plan* (Brown and Caldwell, 2002d). Characterization of potential off-site and on-site cover materials will include an inventory of available material types, volume estimates, the collection of representative samples, and laboratory analyses. Geotechnical analyses will include grain size, moisture content, density, compaction characteristics and other physical analyses. Geochemical analyses included acid-base accounting, whole rock chemistry and agricultural parameters to assess the viability of the waste rock, tailings and heap materials to support vegetation.

This Draft Final Cover Materials Work Plan proposes field investigations to identify off-site sources of native alluvium as potential cover materials that will complement the characterization activities to be conducted under the companion Work Plans described above. The purpose of the investigation for cover materials, as stated in the SOW, is to "collect soil samples for analyses and quantify soil volumes" so that "suitable soils can be used to cap facilities to support closure and future land use". Results of the proposed site investigation activities presented in this Work Plan will be compiled and presented in a Data Summary Report.

The remainder of Section 1.0 of this Work Plan describes the locations of waste rock, tailings and heap areas, and areas of native alluvium located west of the mine site. This section also describes previous sampling and analytical results, and the data quality objectives (DQOs) for this Work Plan in more detail. Section 2.0 presents the details of the proposed site investigation activities including proposed sampling locations, sampling protocols, and quality assurance and quality control (QA/QC) procedures. Section 2.0 of this Work Plan also presents a task-specific Job Safety Analysis in the context of a more comprehensive Health and Safety Plan. Section 3.0 lists references cited in this Work Plan.

1.1 Location

The Yerington Mine Site is located west and northwest of the town of Yerington in Lyon County, Nevada (Figure 1). The Waste Rock Areas (WRAs) are located north and south of the Yerington Pit, as shown in Figure 2, and consist of three geographically distinct features described below:

- South WRA is the largest WRA, and occupies most of the area south of the Yerington Pit.
- W-3 WRA was partially mined by Arimetco for leaching in the Phase I, II, III, and IV-Slot Heaps, and lies north of the Phase IV-Slot Heap Leach and east of the Arimetco Electrowinning Plant.
- S-32 WRA consists of low-grade material stockpiled west of the Phase I/II Heap, and south of the Arimetco Plant Site.

The Tailings Areas are generally distributed through the northern portion of the mine site, as shown in Figure 2, and consist of:

- Oxide Tailings (also known as Vat Leach Tailings or VLT) located between the Phase IV-VLT and Phase III-4X Arimetco Heap Leach Pads, extending to the western margin of the mine site.
- Sulfide Tailings that occupy the northeast corner of the mine site, except for a natural topographic feature (McLeod Hill).

Arimetco Heap Leach areas, shown in Figure 2, which may also provide suitable cover materials consist of:

- Phase I Heap Leach Pad (adjacent to the S-32 WRA)
- Phase II Heap Leach Pad (coincident with the W-3 WRA)
- Phase III South Heap Leach Pad
- Phase III-4X Heap Leach Pad
- Phase IV Slot Heap
- Phase IV VLT Heap

Proposed off-site borrow areas for sample collection and analysis of native alluvium as potential cover materials are shown on Figure 2. The proposed sample locations presented in the companion Work Plans described above are also shown on Figure 2.

1.2 Previous Monitoring and Data Acquisition

This section briefly describes available chemical and physical data for WRA, Tailings Area and Heap materials provided in the *Waste Rock Areas, Tailings and Evaporation Ponds* and the *Arimetco Heap Leach and Process Components Work Plans*.

Whole-rock analytical results from an Expanded Site Inspection conducted by the U.S. Environmental Protection Agency (EPA, 2000) for the S-32 and W-3 WRAs. With the exception of copper, all major constituents analyzed from the waste rock samples are consistent with representative local soils metals concentrations reported by Shacklette and Boerngen (1984).

Geotechnical data for the WRAs are presented in engineering documents prepared for Arimetco's Phase IV-Slot Heap Leach Pad. These include an evaluation of bulk slope stability, recommended constructed slope angles and benches, and soil strength properties. Because waste rock materials are identical in geologic character and grain size distribution to the heap materials, these results may be generalized for all WRAs for an evaluation of physical stability.

Whole-rock analytical results from a single sample collected by the EPA (2000) from the Sulfide Tailings Area are presented in the *Tailings Areas and Evaporation Ponds Work Plan*, with general background soil values for the area.

As part of the engineering design of Arimetco's Phase IV-VLT Heap Leach Pad, samples of materials from the Oxide and Sulfide Tailings were tested using the Nevada Division of Environmental Protection (NDEP) Meteoric Water Mobility Procedure (MWMP). In addition, the Oxide Tailings sample was subjected to acid/base accounting, which indicated that that this material is slightly acid consuming (i.e., net acid neutralization potential greater than zero). VLT materials were also characterized as part of NDEP's temporary capping of "iron bleed" tailings in 2002.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) for field sampling and analytical activities described in this Cover Materials Work Plan include the collection of appropriate data to support the:

- Assessment of native alluvium for use as cover materials, if deemed necessary under the Final Permanent Closure Plan; and
- Development and evaluation of soil cover options for site closure.

Similar DQOs for the use of mine unit materials as cover materials were presented in the *Waste Rock Areas, Tailings and Evaporation Ponds* and the *Arimetco Heap Leach and Process Components Work Plans*.

A four-step DQO process was utilized to develop the activities described in this Work Plan. The DQOs will ensure that data of sufficient quality and quantity are collected to meet the project objectives. The four steps include:

- Step 1. State the Problem;
- Step 2. Identify the Decision;

- Step 3. Identify the Inputs to the Decision; and
- Step 4. Define the Boundaries of the Study.

The problem statement (Step 1) is as follows: "It is unknown whether native alluvial soils are of sufficient quality and quantity to be used as cover materials at the Yerington Mine Site".

Step 2 of the DQO process (Identify the Decision) asks the key question that this Work Plan is attempting to address: "What sampling and analytical activities will serve to assess the potential use of native alluvial soils as cover materials?" The results of proposed field investigations proposed in this Work Plan will be integrated with previous investigations and analytical results to answer this question in a Data Summary Report.

Step 3 of the DQO process (Identify the Inputs to the Decision) identifies the kind of information that is needed to address the question posed under Step 2. Information obtained from field and analytical activities conducted this Work Plan will provide inputs to the decision.

Step 4 of the DQO process (Define the Boundaries of the Study) defines the spatial and temporal aspects of the field monitoring, sampling and analytical activities proposed in this Work Plan. The field and analytical activities described in this Work Plan will be conducted for the areas with sampling locations shown on Figure 2. Proposed activities are anticipated to be conducted in 2003, and the Data Summary Report is anticipated to be completed in 2003.

Analytical results will be used to assess the potential for the cover materials to pose a risk to human health or the environment, to be discussed in the Final Permanent Closure Plan for the Yerington Mine Site. The potential transport of these native alluvial materials for use at the mine site is not expected to modify their geochemical characteristics. Therefore, no increase in human health or ecological risk is anticipated.

SECTION 2.0

WORK PLAN

All site investigations, and related quality assurance/quality control (QA/QC) procedures, will be consistent with the DQOs described in Section 1.3. Atlantic Richfield proposes to conduct the following activities:

- Sampling of native alluvium from off-site locations (i.e., borrow areas);
- Characterization of the alluvium to assess their potential to serve as cover materials; and
- Integration of these results with similar materials characterization activities conducted under the *Waste Rock Areas*, *Tailings and Evaporation Ponds* and the *Arimetco Heap Leach and Process Components Work Plans*.

Figure 2 shows the proposed soil sample locations within the off-site native alluvium areas, along with proposed soil sample locations described in companion Work Plans. The Soil Conservation Service (SCS) Soil Survey of Lyon County (1979) was reviewed as part of this work plan, and soil types for the proposed off-site borrow areas are shown on Figure 2. These soil types were considered when developing the strategy for proposed sampling locations in the proposed borrow areas. Applicable soil type descriptions from the Soil Survey are provided in Appendix A.

Soil sample locations were positioned to obtain representative material types. Samples will be obtained from alluvial materials at off-site sample locations at nominal depths of one, three, and five feet below ground surface. The location and depth of proposed samples may be modified based on actual field conditions observed during sampling. A summary of proposed sample locations is presented below:

Off-site Borrow Area (Arimetco Land)*	Up to 9
Off-site Borrow Areas (2) (BLM Land)*	Up to 18
Sulfide Tailings	4
Oxide Tailings	2
Sulfide Ore Waste Rock Area	2
W-3 Waste Rock Area	5
South Waste Rock Area	8
Phase I Heap Leach Pad	2
Phase II Heap Leach Pad	2
Phase III South Heap Leach Pad	4
Phase III - 4X Heap Leach Pad	4
Phase IV - VLT Heap Leach Pad	4
Phase IV - Slot Heap Leach Pad	6

*to be collected under the Cover Materials Work Plan with each location providing up to 3 depth-specific samples

Results of field investigation and laboratory analytical activities described in this Work Plan will be presented in a Data Summary Report that will include the following information:

- Volume estimates
- Geochemical characteristics
- Physical characteristics
- Comparison to appropriate human health and ecological risk criteria or guidelines

Material volume estimates of native alluvium will be based on available geologic or geophysical information for the potential borrow areas shown in Figure 2. As stated in the appropriate companion Work Plans, the quantity of potential cover materials in the WRAs, Tailings Areas and Arimetco Heaps will be calculated using a Digital Terrain Model (DTM) based on topographic information generated August 2001 aerial photogrammetric methods.

The geochemistry of the alluvial materials will be evaluated for their potential to pose a human health or ecological risk, and to support vegetation. The following analyses will be conducted on samples collected to assess the applicability of particular materials to be used as cover material:

- Whole-Rock Analysis (i.e., metals)
- Agricultural Analyses
- Acid-Base Accounting (ABA)
- Geotechnical and Physical Parameters

Whole-rock analyses for the parameters listed in Table 1 and acid-base accounting (ABA) will be performed by a Nevada-certified laboratory. Agricultural analyses, performed to determine the availability of nutrients for planned or volunteer re-vegetation, will include: Nitrogen, Phosphorus and Potassium (NPK) concentrations; Boron, Chlorine, Calcium, Magnesium and Sodium concentrations; and the calculation of the Sodium Absorption Ratio (SAR).

In order to demonstrate the physical stability of closed mine units that may be covered with alluvium (or combinations of alluvium with waste rock, oxide tailings and heap leach materials) geotechnical characteristics of the native alluvium will be evaluated to support slope stability and stormwater management designs. Physical parameters such as grain size (ASTM D-422), density, compaction characteristics and moisture storage capacity will be analyzed. Results from grain size (particle distribution) analyses may be used in a semi-quantitative manner to assess the potential for cover materials to generate fugitive dust.

All field activities will be conducted in accordance with the Site Health and Safety Plan and the site Job Safety Analysis provided in Section 3.2.

2.1 Quality Assurance and Quality Control Procedures

Procedures for material collection and analysis will follow the specifications and standard operating procedures described in this section. In addition, the procedures will adhere to the comprehensive Quality Assurance Project Plan (QAPP) for the Yerington Mine Site. Quality Assurance/Quality Control (QA/QC) methods described in the QAPP will ensure that the quality and quantity of the

analytical data obtained during the field activities described in this Work Plan are sufficient to support the DQOs. QA/QC issues include:

- Identification of appropriate sample locations and sample collection methods;
- Sample handling and transport; and
- Detection limit and laboratory analytical level requirements.

Sample Collection

Prior to sampling, field personnel will review available site geologic information to finalize sample locations. Proposed sample locations in areas of abundant and sparse native vegetation will also be evaluated in this process. Sample locations will be recorded using a hand-held global positioning system (GPS) and marked in the field with an aluminum tag enscribed with the sample number and date.

Composite sampling methods will be used to develop representative depth-specific samples for each proposed location. Off-site alluvial materials will be sampled by collecting the material with a backhoe and/or hand tools (e.g., augers, disposable plastic trowels or shovels) up to five feet below the ground surface. Equal aliquots of collected solids from discrete depths (e.g. zero to one foot, two to three feet and four to five feet) will be mixed thoroughly by shaking approximately 2.5 gallons of material in a 5-gallon bucket to eliminate strata variation effects. Each solids sample to be combined with others into a single depth-specific composite sample will be weighed on a scale or measured in a graduated volumetric container, then transferred to the mixing bucket. The following depth-specific samples, by approximate weight, will be obtained from the mixed materials:

- 2 kilograms of material for whole-rock analysis
- 1 kilograms for agricultural and ABA analyses
- 1 kilograms for particle size distribution and moisture analysis

Each of the above samples will be placed in sealed double zip-loc© plastic bags, marked with a permanent marker prior to sample collection. After obtaining these samples for whole-rock and ABA analysis, the 5-gallon bucket will be filled with material from the same location in the same manner, for geotechnical analysis (particle size distribution, density, compaction and moisture). Each sample will be sealed and labeled with QA/QC procedures described below prior to shipment or transport to the

analytical laboratory.

Sample Identification and Preservation

After each sample bag is identified by marking the field sample identification on the zip-loc© plastic bag, a sample label will be completed and attached to the plastic bag, and a second zip-loc© bag will be used to contain the labeled bag in case the label falls off. Strict attention will be given to ensure that each sample label corresponds to the field identification number marked on the bag prior to sample collection. The labels will be filled out with a permanent marker and will include the following information:

- Sample identification
- Sample date
- Sample time
- Analyses to be performed
- Person who collected sample

Each sample will be tracked according to a unique sample field identification number assigned when the sample is collected, and recorded clearly in the field notebook. A copy of the bound field notebook pages containing sample identification numbers and corresponding locations should be made after returning to the office. Each sample will be tracked according to a unique sample field identification number assigned when the sample is collected. This field identification number will consist of three parts:

- Sampling event sequence number
- Sampling location
- Collection sequence number

For example, a soil sample collected in the borrow areas during the third sampling event at the fourth location sampled would be labeled: 003BA004. All final sample locations will be presented in a Data Summary Report. Unless otherwise specified for particular analysis methods, soil samples will generally not require addition of preservatives.

Field QA: Sample Handling and Transport

The QA objectives for the sample-handling portion of the field activities are to verify that packaging and shipping are not introducing variables into the sampling chain that could provide any basis to question the validity of the analytical results. In order to fulfill these QA objectives, QC samples will be prepared and submitted. If the analysis of the QC sample indicates that variables were introduced into the sampling chain, then the samples shipped with the questionable QC sample will be evaluated for the possibility of cross-contamination in the field or breach of laboratory QC.

All blanks and duplicate samples will be labeled in the same manner as regular samples, with no indication that they are QC samples. For example, the duplicate sample to the one stated above might be labeled: 003BAX004, with documentation in the field notebook that 003BA004 and 003BAX004 are duplicate samples. A similar labeling procedure would be used for blanks.

Duplicate samples will be collected at a frequency of one per every 10 samples for each analysis. In general, duplicate samples will be collected in the same manner as regular samples. Each sample from a duplicate set will have a unique sample number labeled in accordance with the identification protocol, and the duplicates will be sent "blind" to the lab. Duplicate samples will be submitted for whole-rock analysis and ABA.

Equipment rinsate blanks will be collected to evaluate field sampling and equipment decontamination procedures. One equipment rinsate blank will be collected each day that sampling equipment is decontaminated in the field. Equipment rinsate blanks will be obtained by passing laboratory-grade, certified organic-free water through or over the decontaminated sampling devices used that day. The rinsate blanks that are collected will be analyzed for the same analytes as whole-rock analysis. Each equipment rinsate blank will be collected and sealed in a one-liter HDPE container preserved with nitric acid to a pH of approximately 2.0.

Since contaminants (e.g., volatile organic solvents, PCB, pesticides) are not being analyzed for as part of the Cover Materials Work Plan, field and trip blanks will not be collected to evaluate whether contaminants have been introduced into the samples during sampling and transport procedures.

Decontamination of Equipment

All soil collection (sampling) equipment will be decontaminated between each sample location. In general, sampling equipment will be hand-washed with a solution of tap water and Alconox detergent, then double-rinsed in clean tap water. The decontamination wash should be accomplished with clean buckets, filled half to three-quarters full as follows:

- Bucket 1: Tap water with non-phosphate detergent such as Alconox.
- Bucket 2: Clean tap water or de-ionized water.
- Bucket 3: Clean tap water or de-ionized water.

Equipment decontamination consists of the following general steps:

- Removal of gross (visible) contamination by brushing or scraping.
- Removal of residual contamination by scrub-washing in Bucket #1,
- Rinsing in Bucket #2, then rinsing in Bucket #3. Change the water periodically to minimize the amount of residue carried over into the third rinse.

After use, gloves and other disposable PPE will be containerized and handled as investigation derived waste.

2.2 Site Job Safety Analysis

Prior to the start of work, field personnel will conduct a health and safety meeting to review the Site Health and Safety Plan (SHSP) and the site-specific Job Safety Analysis (JSA) for this Work Plan, attached as Appendix B, and to verify personal training certification. The JSA was created in accordance with Atlantic Richfield's Health and Safety protocols and the SHSP. The SHSP identifies, evaluates, and prescribes control measures for safety and health hazards, in addition to providing for

emergency response at the Yerington Mine site. Copies of the SHSP will be maintained at the site, in Atlantic Richfield's Anaconda office, and in Brown and Caldwell's Carson City office.

The SHSP includes a section for site characterization and analysis that will identify specific site hazards and aid in determining appropriate control procedures. Required information for site characterization and analysis includes:

- Description of the response activity or job tasks to be performed;
- Duration of the planned employee activity;
- Site accessibility by air and roads;
- Site-specific safety and health hazards;
- Hazardous substance dispersion pathways; and
- Emergency response capabilities.

All contractors will receive applicable training, as outlined in 29CFR 1910.120(e) and as stated in the SHSP. Required training, depending on the particular activity or level or involvement, may include MSHA or OSHA 40-hour training and annual 8-hour refresher courses. Other training may include, but is not limited to, competent personnel training for excavations and confined space, first aid, and cardio-pulmonary resuscitation (CPR). Copies of the 40-hour and annual refresher certificates will be obtained prior to any work activities and will be attached to the SHSP.

The JSA describes individual tasks, the potential hazards or concerns associated with each task, and the proper clothing, equipment, and work approach for each task. Personnel will initially review the JSA forms at a pre-entry briefing. Site-specific training will be covered at the briefing, with an initial site tour and review of site conditions and hazards. The following records of pre-work safety briefings will be attached to the SHSP:

- SHSP Employee Acknowledgement Form - signed by each person working on the job, acknowledging that they have read the SHSP.

- SHSP Safety Briefing Form - signed by the Site Health and Safety Coordinator or person conducting the meeting, noting what was discussed at the meeting, and who was present.

Elements to be covered in site-specific briefing include: persons responsible for site-safety, site-specific safety and health hazards, use of PPE, work practices, engineering controls, major tasks, decontamination procedures and emergency response. The JSA for this Work Plan incorporates individual tasks, the potential hazards or concerns associated with each task, and the proper clothing, equipment, and work approach for each task. The following table outlines the tasks and associated potential hazards that are included in the JSA provided in Appendix B:

SEQUENCE OF BASIC JOB STEPS	POTENTIAL HAZARDS
1. Safety Meeting	
2. Sample location identification	1. Inhalation of fugitive dust
3. Collection of soil sample by hand and decontamination of equipment	1. Skin irritation from dermal or eye contact 2. Slipping or falling on sharp rocks or other protruding objects 3. Encounter with dangerous wildlife (e.g., rattlesnakes)
4. All Activities	1. Back, hand, or foot injuries during manual handling of materials
5. All Activities	1. Heat exhaustion or stroke
6. All Activities	1. Hypothermia or frostbite
7. Unsafe conditions	1. All potential hazards

SECTION 3.0

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